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NOTES FROM THE WOODS HOLE LABORATORY—1928.

I. F. LEWIS AND W. R. TAYLOR.

(Plate 176).

OEDOGONIUM REINSCHII Roy sec. Hirn. For several seasons past many collections from the ice pond (Sheep Pond) on the northwest shore of Cuttyhunk Island have contained scattered specimens of an *Oedogonium*, the species of which apparently could not be determined, since the material was never found in fruiting condition. While examining a collection containing this material during the summer of 1927 the author was struck by the resemblance of this plant to the illustration of *Oe. Reinschii* shown by W. Heering¹ (fig. 342), with a description (p. 226) as follows:

135. *Oedogonium Reinschii* Roy sec. Hirn. (Fig. 342)—Vegetative Zellen meist fast sechseckig oder fast ellipsoidisch, nur einige zylindrisch oder fast zylindrisch. Basalzelle fast halbkugelig, Endzelle stumpf. Vegetative Zellen 6-9(-11) μ dick, $1\frac{1}{4}$ - $2\frac{1}{4}$ mal so lang, Basalzelle 8-9 μ dick, 5-6 μ hoch. Fruktifikationsorgane gänzlich unbekannt.

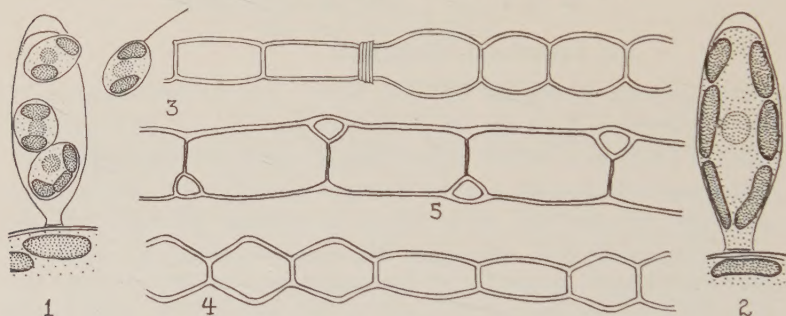
Material showing the basal cell or the terminal cell of a filament was not found, but measurements of the vegetative cells correspond very closely to those given by Heering and a comparison of the accompanying sketches (Text-figs. 3, 4) with the description and with Heering's illustration will suggest that in all probability this plant from Cuttyhunk should be recognized as *Oe. Reinschii*. Comparison with the more complete description given by Hirn² tends to confirm the determination. The illustrations of this species in this

¹ Heering, W., in A. Pascher, Die Süßwasserflora Deutschlands, Oesterreichs und der Schweiz, Heft 6: 1914.

² Hirn, K. Monographie und Iconographie der Oedogoniaceen. Acta Soc. Sci. Fennicae, Vol. 7. 1900

work (Pl. 50) are too inadequate to serve as a certain basis for comparison. Hirn lists the plant as occurring in many parts of continental Europe and in Scotland, in Paraguay, but gives no record for North America. Collins¹ gives a station for it in Florida. The present note, therefore, lists it for a new station on Cuttyhunk Island, Barnstable County, Massachusetts.—JAMES P. POOLE.

CHARACIOPSIS pileata Copeland, n. sp. Plant ovoid, attached; chromatophores six, in definite positions: two in the basal third of the cell, two at the middle, and two near the apex, each pair forming a band around the cell, and the six lining the cell wall except at the apex; nucleus at or near the center of the cell; two vacuoles present, one above and one below the nucleus; cell wall thickened at the apex, forming a conspicuous hemispherical cap; stalk short, not expanded into a basal disk; cell 14 to 19 μ by 6 to 7 μ (Text-fig. 2.).



The apex of the cell is never pointed, but always rounded. The apical thickening of the wall distinguishes this species and *C. crassiapex* Prinz from all other members of the genus. From *C. crassiapex* it differs in the rounded rather than pointed cell apex, the absence of a basal disk and the definite number and arrangement of the chromatophores. Reproduction is by zoospores with one visible flagellum, of which four are produced in a cell (Text-fig. 1). These are freed through an irregular pore in the cell wall near the apex. After swimming about for a short time, they become attached and developed directly into the stalked plants. This species is found on filamentous algae, especially on *Tribonema* and *Microspora*, in freshwater ponds. It has been found on Nashawena Island and in ponds in Falmouth, Massachusetts.—JOSEPH J. COPELAND.

GONGROSIRA DEBARYANA Rabenh., newly reported for the state,

¹ Collins, F. S. Green algae of North America, Second Supplement. Tufts College Studies, Vol. 4. 1918.

was secured from the back of a snapping turtle in Sheep Pond, Cuttyhunk, Massachusetts.

MERISMOPEDIA TENUISSIMA Lemm., *M. ELEGANS* A. Br., *COELOSPHAERIUM NAEGELIANUM* Ung., *CHROOCOCCUS MINUTUS* (Kg.) Naeg., and *APHANOCAPSA PULCHRA* (Kg.) Rabenh., were secured from Oyster Pond, Falmouth, Massachusetts, growing among filamentous algae upon *Chara*, July 31, 1927. These are new records for the state.

LAMINARIA PLATYMERIS De la Pyl., ordinarily a northern species, was secured from the pilings of the wharf at Penikese Island, Massachusetts, during July in 1923, 1924, and 1925.

ACROTHRIX sp.—A large and interesting alga of this genus, not previously recorded from New England, has appeared at several stations and will be described in detail elsewhere.¹

DUMONTIA FILIFORMIS (O. F. Müller) Grev. was some time ago reported as having appeared on the New England coast. It has, apparently of recent years, reached the Buzzards Bay area, and has been found in abundance: at first at Cuttyhunk Island near the Life Saving Station, and later at Grassy and Pine Islands, off Woods Hole, Penikese Island, and on a small peninsula projecting from Sconticut Point near New Bedford, Massachusetts.

SEIROSPORA GRIFFITHSIANA Harv. Although rare in the early summer months, this species is quite abundant around Woods Hole by August, thus agreeing with Farlow's² statement that it is one of the commonest of the *Callithamnieceae* south of Cape Cod. *S. Griffithsiana* is characterized by the presence of seiros spores, which are borne in crowded branched chains at the end of the filaments. Tetraspores and bispores also occur on European specimens, both on the same individuals as seiros spores as well as on separate plants. The sexual organs, although described, occur but rarely. While specimens bearing seiros spores commonly occur in the vicinity of Woods Hole, Farlow's statement (loc. cit.) that "no form of tetraspore or bispore has been observed on American specimens" has hitherto held true. However, among material dredged in 4-6 feet of water off the Coal Wharf at Woods Hole and in 50 feet off West Chop, Marthas Vineyard, during August, 1927, there were several specimens bearing both tetraspores and bispores. Judging from the measurements

¹ Taylor, W. R., in Amer. Jour. Bot., 1928.

² Farlow, W. G. The marine algae of New England. Rept. U. S. Comm. Fish and Fisheries for 1879, Appendix A-1. 1881.

given by Farlow (loc. cit.) these plants had not yet attained their maximum size and although bearing seirosports in large numbers, tetrasporangia and bisporangia were not uncommon. In some cases they were quite abundant, but no tetrasporic or bisporic specimens without seirosports have been observed. Since the tetrasporangium does not divide by successive bipartitions it is an easy matter to distinguish the developing tetrasporangium from a mature bisporangium. It is interesting to note that on the Woods Hole material there occur abnormal tetrasporangia and bisporangia, produced by irregularities in the lines of division and closely resembling those recorded by Rosenvinge¹ (p. 349, fig. 278) as occurring on the Danish specimens.—K. M. DREW.

TRAILIELLA INTRICATA Batters. This species was found in considerable abundance at Nobska Point near Woods Hole and Black Rock near New Bedford, Massachusetts during the summer of 1927 [and 1928] occurring most commonly in the tidal wash. It has been found only occasionally on attached specimens of the host plants—*Chondrus crispus*, *Phyllophora membranifolia* and *Ahnfeldtia plicata*. The early records of this extremely interesting species were confined to European waters, but recently Kylin² (p. 44, fig. 25a) has recorded its occurrence at Friday Harbor, Washington in 1924. It was first reported by Batters³ (p. 10) as occurring on the south coast of England in 1890. The next record came from Limfjord, Denmark in 1901, and then from the Kattegat near Frederikshavn in 1909 (Rosenvinge,⁵ p. 305–308, figs. 213–215 bis.). Meanwhile it had been found by Kylin⁴ (p. 83–92, fig. 2) on the west coast of Sweden between 1902 and 1906, and by Rosenvinge in 1907 on the southeast coast of Norway and later, in 1916, on the west coast. It was also reported by Kuckuck⁵ (p. 135) from Helgoland in 1915. The New England specimens agree closely with Batters' original description of the type. The plant forms dense rose-red tufts often reaching a diameter of 3.5 cm. In June the tufts consist almost entirely of basal creeping fila-

¹ Rosenvinge, L. K. The marine algae of Denmark, Pt. 3. Kgl. Danske Vidensk. Selsk. Skrifter, 7. Raekke, Natur. Math. Afd., 7 (3). 1923–1924.

² Kylin, H. The marine red algae in the vicinity of the Biological Station at Friday Harbor, Wash. Lunds Univ. Årsskr., N. F. Avd. 2, 21 (9). 1925.

³ Batters, E. A. L. Some new British marine algae. Journal of Botany, 34. 1896.

⁴ Kylin, H. Ueber *Spermothamnion roseolum* (C. Ag.) Pringsh. und *Trailiella intricata* Batters. Bot. Notiser, 1916.

⁵ Kuckuck, P. (Ref.: H. Kylin. Ueber die Blazenzellen einiger Florideen und ihre Beziehung zur Abspaltung von Jod. Ark. Bot. 14: 1–13. 1915.) Zeit. Bot. 8: 135–136. 1916.

ments, but as the season progresses the erect filaments become both longer and more numerous. In the New England specimens the cells of the creeping filaments measure 30–42 μ diam., and are 1–2 times as long. They give rise to discoid multicellular hapteres at irregular intervals, and also to the diffusely and sparsely branched erect filaments. The branches of these erect filaments are markedly divaricate, and arise near the center of the cell. The cells of the erect filaments are slightly barrel shaped, averaging 26 μ (25–30 μ) in diameter, and $1\frac{1}{2}$ – $2\frac{1}{2}$ times (rarely to 3 times) as long. Towards the apex the cells decrease considerably in length, but only slightly in diameter. The filaments are distinguished by the presence of abundant refractive gland cells, 10–15 μ in diameter (text-fig. 5), borne sub-distichously at the upper ends of the parent cells. Macroscopically this species closely resembles *Spermothamnion Turneri* (Mert.) Aresch., with which it has been confused, but differs from that species in the much shorter, uninucleate, barrel shaped cells, the branched, multicellular holdfasts, the abundant gland cells as well as the complex mode of origin of the tetrasporangium so unlike that of *Spermothamnion* and other genera of the Ceramiaceae. So far no fertile material has been found in this region, as might be expected, since the European records show that tetrasporic specimens have not been found there before September. For a fuller description and figures of *Trailiella intricata* see Rosenvinge (loc. cit.).—K. M. DREW and A. C. HOF.

ASPARAGOPSIS HAMIFERA (Hariot) Okam. This very striking plant appeared July 18–19, 1927 for the first time on record upon Nobska Point near Woods Hole, Massachusetts, the first specimen being detected by Miss Irene Fort. The material was all drifted ashore, the pieces small but mostly in very good condition. The plants were rather dense of aspect, with relatively few crozier tips on most individuals (Plate 176). All were carposporic, some quite richly fruiting. This appears to be the first occurrence of the genus and the family (Bonnemaisioniaceae) on the eastern coast of North America. In 1928 the plant was more frequent, pieces being secured from the original locality on several occasions. One of these reached a length of 11 cm., the main axis was 1.5 mm. in diameter with numerous lateral branches to 3.5 cm. long, the ultimate ramuli 1.5 mm. long and the plant of bushy, virgate habit and rather stiff. This is quite different from the habit of the European (French)

material and would tempt one to describe it as new were it not for the similarity of microscopic details and for the fact that two large pieces (one 11 cm.) collected at Cuttyhunk Island by Miss Mary L. Rollins were very soft. These had a main axis to 2 mm. diameter, the longest lateral branch was 4.5 cm., and one piece bore crozier tips to 3 mm. across their curve. The ultimate ramuli were soft and somewhat penicillate-tufted, measuring 3 mm. long. These plants were apparently sterile. *Asparagopsis* was also secured in considerable quantities at Black Rock near New Bedford. In addition to the drifted specimens it was found sparsely in a dwarfed condition upon *Chondrus* within reach by wading along the edge of the islet. This species is not abundantly represented in the algal herbarium of the New York Botanical Garden, and since a microscopical study of the specimens there failed to give definite characters to separate the present material it seems best to report it under the name applied to the European plant. The $\frac{5}{6}$ -size illustration (Plate 176) is of portions of a cystocarpic plant of moderately stiff habit and the kind most generally secured. Two crozier-tips, shrunken in drying, are marked with arrows in the lower row of specimens.—WM. R. TAYLOR.

CAREX MITCHELLIANA AND OTHER RARE PLANTS NEAR COHASSET, MASSACHUSETTS.—Two or three miles south of Cohasset is the little village of Beechwood. In this vicinity are extensive areas of deep woods, where beech is noticeably frequent, and *Ilex opaca* reaches a trunk diameter exceeding six inches. In the midst of them are small cedar swamps, some at least unmarked on the topographic survey maps. On July 22nd one of these small swamps and its surroundings were carefully investigated. The border of the swamp was broken by little rocky cliffs. In the cooler hollows hemlocks and yellow birch grew with *Ilex opaca* and *Ilex glabra*. We were interested to find *Lycopodium clavatum* and *L. lucidulum*, and were astonished to stumble upon an excellent station of *Lycopodium annotinum*, previously known in the local flora only from points north and west of Boston. In several wet little hollows *Corallorhiza trifida* was frequent, and growing with it in sphagnum were rather small specimens of *Botrychium ramosum*, and some minute little ferns which on the basis of the size and shape of the sterile frond would have to be called *B. simplex*, an association which occurs with

suspicious frequency. In the swamp itself a single plant of the locally very rare *Malaxis unifolia* was found in the first five minutes, an hour's search yielding only two more.

But the best find was a large clump of a *Carex* obviously close to *C. crinita*, but suspiciously different, which proves on critical examination to be *Carex Mitchelliana* M. A. Curtis. Weatherby (RHODORA, 1923, p. 17) showed that this little known species, described from South Carolina, ranged north along the coastal plain to New Jersey and Cape Cod. A study of the increased material now in the Gray Herbarium enables us to add a little to his excellent critique. The smooth, unconstricted achene is, of course, the most important technical character. The nervation of the perigynia is, however, a tendency rather than an absolute character, and is well developed only in overripe examples. There are three other characters in the spike, which aid readily in field recognition. First the scales are shorter and project less beyond the perigynia than in either *Carex crinita* or *C. gynandra*, giving the spike a far less bristly appearance. The greatest care must be used here in correctly estimating the maturity of the spike, as immature perigynia of *C. Mitchelliana* are greatly exceeded by their subtending scales. The same caution must be used with the second character, which is the relatively thicker spike in *C. Mitchelliana*. The color of a fully ripe spike is grayish green, the scales remaining hyaline, while spikes of fully mature *C. crinita* or *gynandra* are, as is well known, yellowish, brownish, or even rusty, after the perigynia have begun to fall. To sum up, mature plants of *Carex Mitchelliana* are readily recognizable in the field, but immature specimens, whether in the field or herbarium, would require a most critical examination to be determined correctly.

The occurrence of *Carex Mitchelliana* near Cohasset constitutes a northward extension of its range, and adds a new species to the Flora of the Boston District.—LUDLOW GRISCOM and H. K. SVENSON, Cambridge, Massachusetts.

TWO NEW VARIETIES OF EARLY SPRING PLANTS—A
RANUNCULUS FROM MISSOURI AND A HETEROTHECA
FROM TEXAS

H. C. BENKE.

For a number of years the writer has been interested in the calendar of the earliest spring flora, more especially that of a zone across the country from Green Bay, Wisconsin, on the north to the Gulf Coast of Texas about Galveston. The past season a trip was made from Galveston to Chicago with many stop-overs, proceeding northward as the earliest flora would warrant when specimens of interest were taken with many field notes.

Two of the specimens secured do not agree exactly with any described hitherto so it seems necessary to propose new names for them.

The species *RANUNCULUS HARVEYI* (Gray) Britton was obtained as far north and west as Rolla, Phelps County, Missouri but plants collected there were found to differ from the typical form particularly in their pronounced hairiness. Upon looking over the specimens on file in the herbarium of the Field Museum, Chicago there were found but two true collections of this species of buttercup: near St. Louis, Mo., *H. Eggert* and Allentown, Mo., *Lettermann*—others so named were errors in determination. Both are from St. Louis County and probably present the extreme northeastern limit of the species' range. As there is no specimen in the Illinois Herbarium of the Field Museum the plant has, perhaps, not crossed the Mississippi River. Both these specimens agree well with the original descriptions—sparsely pubescent (Gray) or glabrous (Britton)—that is, nearly or quite glabrous and the achenes beaked very much like those of *R. abortivus* L.

But the specimens from Rolla are very strongly pilose even as to most of the leaves and the axils of the upper ones. There is also more or less pubescence on the sepals. And the achene-beaks are plainly recurved rather than "straight or straightish" as are those of *R. Harveyi*. Therefore I am proposing for this pubescent plant the name

RANUNCULUS HARVEYI (Gray) Britton, var. **pilosus**, var. nov., ubique plus minusve pilosis imprimis petiolis caulibusque; foliis sepalisque etiam mediocriter pilosis vel subglabris; stylo aliquid brevi recurvato.

With the species as to roots, leaf-forms, inflorescence and petals but

strongly pilose with long soft hairs (1-2 mm. long) especially on lower stems, petioles and axils of upper leaves. Leaves sparsely to densely hairy especially on upper surface and sepals more or less so. Styles recurved, almost from the first, mostly very much so but varying in this character and quite resembling those of *R. alleghaniensis* Britton, in cases.—The TYPE is from Rolla, Mo., April 18, 1928, *H. C. Benke 4575* in Field Museum.

HETEROTHECA was found to be quite common about Galveston, Texas, where it formed strikingly beautiful patches in the landscape. The specimens noted were branched at the base, decumbent or strongly ascending in habit, and their leaf-form, as noted on closer inspection later, was most unusual. The casual aspect of the plant in the field reminded one of *Chrysopsis* species.

Specimens of *Heterotheca* in the Field Museum as well as literature on the subject indicate this to be a difficult genus, the species not being sharply defined but the larger number on file can be referred to *H. subaxillaris* (Lam.) Britton & Rusby. My specimens under consideration being conspicuously differentiated (even by aspect in the field), a variety to include them is, therefore, named and described as follows:

HETEROTHECA SUBAXILLARIS (Lam.) Britton & Rusby, var. **petiolaris**, var. nov., *H. subaxillari* peraffinis; caulibus plus minusve adscendentibus; foliis plerumque petiolatis solum supremis sessilibus; basi petiolorum haud vel vix dilatata; pedicellis parce glandulosis.

With the species, lower and mostly decumbent, subdecumbent or ascending. Leaves nearly all petioled—except those in and near the inflorescence; petioles obscurely or not at all dilated at base—the few sessile leaves not clasping, at most slightly winged. Pedicels but sparingly provided with short glands.—The TYPE is from Galveston, Texas, March 12, 1928, *H. C. Benke 4585* in Field Museum.

A plant from Houston, Texas, March 16, 1872, *E. Hall 312* is exactly of the same description; so is another from Belknap, Texas, March 30, 1858, *Sutton Hayes 399* but this latter is a weak plant and nearly strict in its growth.

In the Field Museum are two further specimens which though somewhat similar do not quite agree with the type. They are subdecumbent in habit but the petioles are auricled or winged at base and more of the upper cauline leaves are sessile—even clasping—which would classify them with the species rather than with the variety. They are: Huntsville, Texas, June 3-12, 1908, *Royal A. Dixon 71* and Riverside, Texas, June 19, 1908, by the same collector, being his number *217*.

CHICAGO, ILLINOIS.

AN AMERICAN REPRESENTATIVE OF CALAMAGROSTIS
EPIGEJOS.

M. L. FERNALD.

EARLY in September last, Professor W. H. Sheldon, the distinguished philosopher of Yale University and a keen amateur botanist, brought me for identification a grass which he had found in sandy open woods by Long Pond in Harwich, on Cape Cod, not far from our summer homes. The grass, apparently of the genus *Calamagrostis*, was obviously not any species recognized in temperate eastern America, having very prolonged linear- to lance-cylindric strict panicles 2.3-3.3 dm. long, with the callus-hairs of the spikelets as long as the linear-lanceolate long-attenuate glumes, thus making the panicles suggest small inflorescences of *Phragmites* or of *Arundo*. On September 10 I visited the station, a flat area in dry sandy woods close to the small *Ammophila*-covered sand hills bordering Long Pond. The plant was in fruit, closely occupying an area perhaps 25 ft. (7 m.) square, and in the late afternoon light its slender erect panicles had a silvery sheen due to the long and abundant white hairs of the callus. The culms were solitary or few, 1.3-1.5 m. high, springing from long wiry rootstocks and stolons, and the stiff and harsh basal leaves were broad enough to be passed with ease as those of *Ammophila breviligulata* Fern.¹

Upon unpacking my summer's collections I showed the strange grass to my student Mr. George Ledyard Stebbins, Jr., who is engaged in a detailed study of some boreal species of *Calamagrostis*, and he instantly recognized it as belonging with the Eurasian § *Epigejos* Koch., a very characteristic group of species heretofore apparently unknown in North America. Several European plants of this section have been put forward as species, but by Ascherson & Graebner they are reduced to two primary species: *C. epigejos* (L.) Roth and *C. Pseudophragmites* (Haller f.) Baumg. The plant of Cape Cod sands so closely simulates the silicolous *C. epigejos* of Europe that, upon casual examination, no differences are apparent; and the habitat of the Cape Cod plant is almost uncannily like that of the European, as stated by Ascherson & Graebner: "In dry woods, especially on sandy flat places, on sunny hills, on sandy banks often forming extensive stands."²

¹ Fernald, RHODORA, xxii. 71 (1920).

² "In trockenen Wäldern, besonders an sandigen flachen Stellen, auf sonnigen

In view, however, of the fact that the species of amphigenous genera and sections are so rarely identical on the sands of temperate eastern America and of continental Europe, it seemed worth while to study the *Calamagrostis* with special care; and at once minute, but highly significant differences appear. In *C. epigejos* the panicle is broader than in the Long Pond plant, in outline strongly suggesting large and fully expanded panicles of *C. cinnoides* (Muhl.) Barton, while the panicle of the new American plant has the slender outline of very long inflorescences of *Ammophila breviligulata*. In *C. epigejos* the glumes are 5–8 mm. long, in our plant narrower and only 4–5 mm. long. In *C. epigejos* the lemma is about 3 mm. long, with thin and translucent long teeth, in our plant about 2 mm. long and with opaque teeth; but, most important, the awn of the European plant is borne on the upper half of the lemma, just below the teeth, and projects straight forward; in the American plant the awn comes off from near the base of the lemma and is more arched or slightly divergent at base. It is thus apparent that, although simulating the Eurasian *C. epigejos*, the Cape Cod plant is a fundamentally distinct species, which is proposed as

CALAMAGROSTIS arenicola, n. sp., *C. epigejum* simulans; planta valde stolonifera, rhizomate stolonibusque subrigidis gracilibus; foliis basilaribus subrigidis valde elongatis griseis scabris 4–6 mm. latis; culmis solitariis vel binis erectis 1.3–1.5 m. altis; foliis caulinis 4 divergentibus, laminis superioribus 1.5–2 dm. longis deinde involutis; ligulis chartaceis ovatis obtusis 1.5–5 mm. longis; paniculis erectis valde exsertis lineari- vel lanceolato-cylindricis 2.3–3.3 dm. longis 1.5–4 cm. diametro, radiis confertis coarctatis 1–6 cm. longis scabris; spiculis stramineis confertis 4–5 mm. longis; glumis subaequalibus angustissime lanceolato-attenuatis 3-costatis, costa media scabra; lemmate lanceolato-ovato 2–2.3 mm. longo acuminato valde bifido apice opaco supra basin aristato; pilis glumas subaequantibus.—MASSACHUSETTS: forming a dense stand in a flat opening in sandy woods of *Robinia Pseudacacia*, western end of Long Pond, Harwich, September 10, 1928, *Fernald*, no. 757 (TYPE in Gray Herbarium); station discovered by *W. H. Sheldon*.

For several reasons *Calamagrostis arenicola* is of very great interest. As the first known representative in eastern North America of a characteristic Eurasian section of the genus it is noteworthy and its occurrence in a habitat so similar to that of European *C. epigejos* is

Hügel, an sandigen Ufern oft grosse Bestände bildend"—Aschers. & Graebn. Syn. ii.¹ 214 (1899).

significant. As an eastern American representative of a plant of European sands it takes a place with *Ammophila breviligulata*, *Polygonum glaucum* Nutt.¹ and *Cakile edentula* (Bigel.) Hook.,² all long confused with, but wholly distinct from the European *Ammophila arenaria* (L.) Link, *Polygonum maritimum* L. and *Cakile maritima* Scop.; or with *Corema Conradii* Torr. of the sands from New Jersey to Newfoundland as contrasted with *C. alba* (L.) Don. of Portugal and the Azores. But *Calamagrostis arenicola* is obviously a very rare plant; if it were not highly localized its handsome silvery panicles would long ago have been detected. In this extreme rarity it is certainly not comparable with *Ammophila breviligulata* and *Cakile edentula*, both common and dominant species of their habitats, nor with *Polygonum glaucum* and *Corema Conradii*, which, though not everywhere dominant, have many centers of abundance scattered over wide areas. In its excessive localization *Calamagrostis arenicola* is better compared with another Cape Cod endemic, *Juncus perretus* Fern.³ or with the Cape Cod colony of the two European heaths, *Calluna vulgaris* (L.) Hull and *Erica Tetralix* L. In 1926 the two latter were discovered by Professor Sheldon closely occupying a small area of damp but hardly wet *Polytrichum*-carpeted sand at the border of a pond in Chatham. The original colony had been seriously injured by the making of an artificial cranberry-bog, but, although many specimens (including 100 full sheets of each for the *Plantae Exsiccatae Grayanae*) have been taken from the colony, both species have increased phenomenally in two years and hundreds of seedlings are annually increasing the area covered.

The situation with *Juncus perretus* is very different. This plant, one of the eastern American representatives of widely dispersed or highly localized species of Eurasia, Africa, Australia and western North and South America, was discovered in 1909. When I visited the plant in 1916 "it was in only one very limited station, a few rods long and perhaps a rod wide In this very restricted station, however, the plant was so prolific as quite to exclude all other species from the limited area." That was the condition of the colony in 1916. In October, 1927, there were scarcely a dozen culms and the species seemed on the very verge of extinction; but in August, 1928, Messrs. Ludlow Griscom and Henry K. Svenson

¹ See Fernald, RHODORA, xv. 69-71 (1913).

² See Fernald, RHODORA, xxiv. 23 (1922).

³ Fernald, RHODORA, xix. 17 (1917).

found that it had not only held its own but considerably increased. Whether it will ever get back to the vigorous condition of 1916 it is too soon to predict. It is also impossible to guess whether the equally small Cape Cod colony of *Calamagrostis arenicola* will maintain itself and spread, like the Chatham colony of *Calluna vulgaris* and *Erica Tetralix*, or whether, like its other near neighbor, *Juncus pervetus*, it will quickly yield to the changes brought about by man and in a few years die out or barely maintain an existence. The one known colony of it is now vigorous and very dense but it is in precarious surroundings, with the railroad to Provincetown bounding one side, a wagon-road bounding another, and two summer cottages casting their shade upon it; and, it is not improbable, that in years to come garages will cover the space the rare plant now occupies. It is certainly to be hoped that more extensive and better protected colonies may be discovered, and, with attention now called to it, that it may be found to share with *Ammophila breviligulata* a wide range in open sandy woods of eastern America.

GRAY HERBARIUM.

NOTES FROM THE HERBARIUM OF THE UNIVERSITY OF WISCONSIN—III.

NORMAN C. FASSETT.

TALINUM TERETIFOLIUM and **T. RUGOSPERMUM**. Ever since the description of *T. rugospermum*¹ there has been confusion between this species and *T. teretifolium*, as evidenced by misidentified specimens in herbaria, and by the range assigned to the latter species in Gray's Manual. Originally separated on characters in stigma and anthers, they may be distinguished by differences more readily seen.

- a. Inflorescence branched 3-4, rarely only 2, times; branches bearing only bracts with branches or developed flowers in their axils; leaves, when pressed, flattened, 1-2 mm. broad, acute or rounded at tip, rarely mucronate. *T. teretifolium* Pursh.
- a. Inflorescence branched 2-3, rarely 4, times; branches with usually 1-4 pairs of bracts which apparently bear in their axils hidden aborted flowers; leaves, when pressed, terete, 0.5-1 mm., rarely 1.5 mm., broad, with an abrupt curved mucronate tip. *T. rugospermum* Holzinger.

The sterile bracts of *T. rugospermum* are shown in the illustration² of this species in Britton and Brown's Illustrated Flora.

¹ Holzinger, Asa Gray Bull. vii. 117 (1899).

² Britton and Brown, Illustrated Flora, ed. 2, ii, fig. 1737 (1913).

As here distinguished, *T. rugospermum* is a plant of dry sand plains and sandstone ledges, from Duluth, Minnesota, to central Illinois, and east to the head of Lake Michigan. Its range in Wisconsin is a definite one: in the valley of the St. Croix River north to Polk County; in the Chippewa River valley from Eau Claire County to its mouth; up the Black River to southern Clark County; and in the valley of the Wisconsin River from the broad sand plains of Juneau and Adams Counties down to Grant County, and probably to the Mississippi River.

T. teretifolium is absent from the Middle West, ranging, not from "Pa. to Ind., Minn., and southw."¹ but, as Holzinger has recorded, from "Pennsylvania through North Carolina to Alabama."²

GEUM TRIFLORUM and *G. ciliatum*. These two species, described in 1814 by Pursh, have been united by such authors as Torrey and Gray,³ Coulter and Nelson,⁴ and Jepson.⁵ On the other hand, Greene,⁶ C. P. Smith,⁷ Rydberg,⁸ and Tidestrom⁹ have recognized in this group from three to fourteen species, based mainly on leaf characters. The cutting of the leaflets is very variable, but two general groups may be recognized. The plant of the Middle West (*G. triflorum*) has comparatively shallow dentation toward the tip of the larger leaflets, while the plant of the Far West (*G. ciliatum*) has the corresponding parts *usually* deeply divided or pinnately cleft. Herbarium material may be readily sorted into two groups on this tendency, although an occasional specimen (*Clements* 168, and Middle Park, Colorado, July 25, 1875, *W. A. Henry*, for example) shows both types of leaves. The number of possible subdivisions of each of these groups is limited only by the number of specimens an author might have before him.

C. P. Smith (*l. c.*) points out a style character to separate these two groups, and describes in some detail the nature of the styles in 85 fruiting specimens. The general conclusion to be drawn from his data, and borne out by a study of the 34 fruiting specimens in the Herbarium of the University of Wisconsin, as well as fresh material

¹ Gray's Manual of Botany, ed. 7: 388 (1908).

² Asa Gray Bull., viii. 38 (1900).

³ Fl. N. Am. i. 423 (1840).

⁴ New Manual of Botany of the Central Rocky Mts., 262 (1909).

⁵ Manual of the Flowering Plants of Calif. 497 (1925).

⁶ Leaflets i. 175-179 (1906).

⁷ Muhlenbergia vii. 1-17 (1912).

⁸ N. Am. Fl. xxii. 409-410 (1913) and Fl. Rocky Mts. ed. 2: 432-433 (1922).

⁹ Contrib. U. S. Nat. Herb. xxv. 279 (1925).

at hand, is that the style-tip of the Far Western plant is generally jointed or deciduous, while that of the plant of the Middle West is generally not jointed and is more persistent.

Regarding this style character Smith says: " . . . the plumose styles were positively, tho inconspicuously, bent and jointed, much after the manner of *Geum* proper. As this character would seemingly disqualify my plant as a member of the genus *Sieversia*, of authors I concluded that it was unknown to science, in fact, a worthy connecting link between *Sieversia* species and typical *Geum*." Accordingly, a third genus, *Erythrocoma* Greene, was accepted. To the conservative botanist, the character of this group would seem to warrant the reuniting of *Sieversia* with *Geum*, rather than the establishment of a third genus.

GEUM TRIFLORUM Pursh, Fl. Am. Sept. 736 (1814). *G. ciliatum* Riddell, Syn. Fl. Western States 20 (1835), not Pursh.—Style-tips rarely jointed, persistent; longer leaflets of the basal rosette-leaves toothed or shallowly cleft only toward the tip, oblong, subcuneate, or slightly falcate, usually with nearly straight sides; calyx purplish.—New York;¹ Ohio;² Illinois to South Dakota and Alberta.

G. TRIFLORUM, f. **pallidum**, n. f., calycibus stramineis.—Calyx yellowish.—ILLINOIS: prairies, West Chicago, June 26, 1897, *W. S. Moffatt* (TYPE in Herb. Univ. Wisc.).

G. TRIFLORUM, var. **ciliatum** (Pursh), n. comb. *G. ciliatum* Pursh, Fl. Am. Sept. 352 (1814). *Sieversia ciliata* G. Don, Gen. Hist. Dichlamydeous Plants ii. 528 (1832).—Style-tips mostly jointed or deciduous; longer leaflets of the basal rosette-leaves usually pinnatifid or deeply cleft into linear divisions; calyx purplish.—The name *G. ciliatum* holds a position of page priority over *G. triflorum*, but the two were first united by Torrey and Gray under the name *G. triflorum*.

G. TRIFLORUM, var. **ciliatum**, f. **flavulum** (Greene), n. comb. *Erythrocoma flavula* Greene, Leaflets i. 177 (1906). *E. brevifolia* Greene, l. c. 176.—Sepals yellowish.

G. TRIFLORUM, var. **ciliatum**, f. **ornatum** (Greene), n. comb. *Erythrocoma ciliata*, var. *ornata* Greene, l. c. 178.—Floral bracts pinnately cleft and divided.

MADISON, WISCONSIN.

THE PRESENT STATUS OF *MAGNOLIA VIRGINIANA* IN MASSACHUSETTS.
—Curious to learn whether the famous Gloucester station for *Magnolia virginiana* L. had actually survived the depredations of thoughtless nurserymen and local gardeners, I recently (July 28) investigated a

¹ House, N. Y. State Mus. Bull. ccliv. 397 (1924).

² Riddell, l. c.

swamp in which Dr. J. B. May had collected it over twenty years ago. This swamp is now a part of Ravenswood Park and has been made accessible by numerous paths built along and across it. Without leaving the paths I was able to count a dozen specimens, some of which were perhaps four meters high. Although the flowering season was about over, the fragrance of a few late blossoms was distinctly noticeable in their vicinity. It is to be hoped that the Park authorities have effectually prevented further inroads on this interesting outpost of a southern species.—R. J. EATON, Cambridge Massachusetts.

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